



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,808	01/11/2002	Steven Teig	SPLX.P0008	9068

23349 7590 11/01/2002

STATTLER JOHANSEN & ADELI  
P O BOX 51860  
PALO ALTO, CA 94303

EXAMINER
----------

NGUYEN, DAO H

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/043,808

Applicant(s)

TEIG ET AL.

Examiner

Dao H Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 21-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2818

### **DETAILED ACTION**

1. In response to the communications dated 01/11/2002 through 09/04/2002, claims 21-35 are active in this application as a result of the cancellation of claims 1-20 and 36-47.

### **Acknowledges**

2. Receipt is acknowledged of the following items from the Applicant.

Information Disclosure Statement (IDS) filed on 05/22/2001 and made of record as Paper No. 2. The references cited on the PTOL 1449 form have been considered.

This application is a continuation of the co-pending application serial number 09/681,776, filed on 06/03/2001, which is a continuation of the co-pending application serial number 09/733,104, filed on 12/07/2000.

### **Specification**

3. The specification is objected to for the following reason:

The redundant phrases at the end of the Detailed Description, after paragraph [0088] should be deleted. Appropriate correction is required.

Art Unit: 2818

4. The specification has been checked to the extent necessary to determine the presence of possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 21-35 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent No. 6,150,193 to Glenn.

Regarding to claim 21, Glenn discloses an integrated circuit, as shown in figures 7-9, and 13b, comprising:

a metal layer 50 comprising a plurality of conductors 26 to interconnect one or more points on the integrated circuit;

wherein at least one conductor comprises a plurality of wires deposited in different directions, the wire comprising a continuous conducting segment deposited in a single direction measure relative to the boundaries of the integrated circuit; and

Art Unit: 2818

wherein, for each connector that comprises more than two wires, at least 30 percent of the wires in the conductor are deposited in different directions.

See figures 7C and 8C.

Regarding to claim 22, Glenn discloses the integrated circuit , wherein the direction comprises horizontal/vertical, or Manhattan direction. See figure 8C.

Regarding to claim 23, Glenn discloses the integrated circuit, wherein the direction comprises a diagonal direction. See figure 8C.

Regarding to claims 24, and 25, Glenn discloses the integrated circuit, wherein the diagonal direction comprises an octalinear or a hexalinear direction. See figure 7C.

Regarding to claim 26, Glenn discloses an integrated circuit, as shown in figures 7-9, and 13b, comprising:

a metal layer 50 comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposited in a single direction, each pair of conductors comprising:

a first wire deposited in a horizontal/vertical direction, or Manhattan direction, relative to the boundaries of the integrated circuit, the first wire comprising a first wire length including first and second ends;

a second wire deposited in a diagonal direction relative to the boundaries of the integrated circuit, the second wire comprising a second wire length including first and second ends, the first end of the second wire being coupled to the second end of the first wire; and

wherein, an effective direction of the pairs of conductors comprises an angle,  $A$ , measured relative to the boundaries of the integrated circuit, defined by the expression  $\tan A = Y/X$ , wherein,  $Y$  comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and  $X$  comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the  $Y$  line segment. See figures 7C, 8C.

Regarding to claims 27 and 28, Glenn discloses the integrated circuit, wherein the Manhattan direction for the first wire comprises a horizontal direction or a vertical direction. See figures 7C, 8C.

Regarding to claims 29 and 30, Glenn discloses the integrated circuit, wherein the diagonal direction comprises a plus or minus 45 degree direction for the second wire. See figures 7C, 8C.

Art Unit: 2818

Regarding to claims 31 and 32, Glenn discloses the integrated circuit, wherein the diagonal direction comprises a plus or minus 60 degree direction for the second wire. See figure 7C.

Regarding to claims 33 and 34, Glenn discloses the integrated circuit, wherein the diagonal direction comprises a plus 120 degree or a minus 30 degree direction for the second wire. See figure 7C.

Regarding to claim 35, Glenn discloses a method for simulating any wiring direction using wires deposited in diagonal and horizontal/vertical or Manhattan directions, as shown in figures 7-9 and 13B, the method comprising the steps of:

providing a metal layer 50 comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposited in a single direction;

for each pair of conductors:

depositing a first wire in a horizontal or vertical, or Manhattan direction relative to the boundaries of the integrated circuit, the first wire comprising a first wire length including first and second ends;

depositing a second wire in a diagonal direction relative to the boundaries of the integrated circuit, the second wire comprising a second wire length including first and second ends;

coupling the first end of the second wire to the second end of the first wire; and wherein, an effective direction of the pairs of conductors comprises an angle,  $A$ , measured relative to the boundaries of the integrated circuit, defined by the expression  $\tan A = Y/X$ , wherein,  $Y$  comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and  $X$  comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the  $Y$  line segment.

See also column 7, line 39 to column 9, line 8.

### Conclusion

7. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (703) 305-



Art Unit: 2818

1957. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308 - 4910. The fax numbers for Customer Service is (703) 872-9317, for the organization where this application proceeding is assigned is (703) 872-9318 for regular (Before Final) communications or (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Dao H. Nguyen', with a long horizontal line extending from the end of the signature.

Dao H. Nguyen  
Art Unit 2818  
October 25, 2002

  
**HOAI HO  
PRIMARY EXAMINER**